

TWO NEW *XYRIS* (XYRIDACEAE) FROM THE AMAZON BASIN OF BRAZIL

Among undetermined Xyridaceae sent to the senior author for definitive treatment during 1980–1982 are two from northern Brazil that we agree are new species to be added to the flora of Brazil.

Xyris pectinata Kral, Smith & Wanderley, sp. nov. TYPE: Brazil. Amazonas: Estrada Transamazônica, campina aberta, terreno arenoso, Proj. RADAM, 1 June 1976, T. R. Bahia 35 (holotype, INPA; isotypes, US, VDB). Figure 1.

Herba perennis densicaespitosa, tenella, glabra; radices graciles. Folia linearia, 4–6 cm longa, erecta vel leviter expansa, vaginis scaporum longiora. Laminae planae vel leviter tortae, 0.9–1.2 mm latae, vaginis 3–5-plo longiores, longitudine distincte multinervosae, ferrugineae vel olivaceae; apices contracti, incurvato-acuti; margines incrassati, minute ciliati; vaginae carinatae, carinibus persaepe minute rufociliatis, incrassatis, lateribus valde longitudine multicostatae, pallide vel intense ferrugineae, marginibus in laminas gradatim convergentibus, ad apicem ligulam acutam 0.5 mm longam fascientes, infime gradatim dilatatae. Vaginae scaporum laxae, plerumque apertae, tortae, basin versus nitidae, a medio ad apicem carinatae, laminis aut similibus laminis foliorum aut brevibus. Scapi subteretes, filiformes, plus minusve spiraliter torti, 1.2–2 dm alti, ca. 0.4–0.5 mm crassi, olivacei, distaliter acute bicostati, costis laevibus. Spicae subglobosae vel late obovoideae, 4.5–6 mm longae, pluriflorae, breviter attenuatae; bracteae steriles 2(–4), pari infimo oblongo, 2–2.5 mm longae, areis dorsalibus linearibus bracteam aequantibus; bracteae fertiles arcte spiraliter imbricatae, late ovatae, obovatae, suborbiculariae, aut reniformes, ca. 3 mm longae, convexae et leviter carinatae, obtusae vel subtruncatae, ad apicem utrinque erosae et ciliatae, scariosae, minute tuberculato-rugulosae, a medio ad basim multo crassiores, nitidae, brunneolae, marginibus effuse et pectinate rigidofimbriatis; area dorsalis ovata, ca. 2–2.5 mm longa, glauca. Sepala lateralia ca. ½ connata, ca. 2 mm longa, inaequilateralia, lobis acutis scariosis, ala carinali angusta, integra. Laminae petalorum anguste obovatae, ca. 1.5 mm longae, ad apicem rotundatae, laceratae, luteolae. Staminodia aliquantum redacta, bibrachiata, brachiis ad apicem breviplumosis, pilis moniliformibus. Antherae oblongae, ca. 0.3–0.4 mm longae, loculis parallelis distinctis; filamenta ca. 0.5 mm longa. Capsula dorsival-ventraliter compressa, oblongo-cylindrica, tenuissima, 1.2–1.3 mm longa; placenta basal. Seed solitary, lenticularly oblong-ellipsoid, 1–1.2 mm long, filling capsule, translucent, pale yellow-brown, finely longitudinally striate.

Delicate, smooth, cespitose perennial; roots slender. Leaves linear, 4–6 cm long, erect or

somewhat spreading, longer than the scape sheaths; blades 3–5 times longer than the sheaths, plane or slightly twisted, 0.9–1.2 mm wide, longitudinally distinctly multinerved, strongly flattened, ferrugineous to olive-green; apices contracted, incurved-acute; margins thickened, minutely ciliate; sheaths carinate, with carinas minutely red ciliate, incrassate, the sides strongly longitudinally nerved, pale to deep red-brown, the margins gradually converging into the blade, at apex producing an acute ligule 0.5 mm long, below gradually dilating. Sheaths of scapes lax, mostly open, twisted, shining toward the base, carinate at the middle, with blades either similar to those of principal leaves or shorter. Scapes subterete, filiform, ± spirally twisted, 1.2–2 dm high, ca. 0.4–0.5 mm thick, olivaceous, distally with sharp, smooth costa. Spikes subglobose to broadly ovoid or short-cylindric, 4.5–6 mm long, several-flowered, short-attenuate; sterile bracts 2(–4), 2–2.5 mm long, with dorsal areas linear and as long as bract, the lowest pair oblong; fertile bracts tightly spirally imbricate, broadly ovate, obovate, suborbicular or reniform, ca. 3 mm long, convex and slightly carinate, obtuse to subtruncate at apex on either side, erose, scariosus, minutely rugulose-tuberculate, much thicker from the middle to the base, shining, brownish, with margins effusely, pectinately, and rigidly fimbriate; dorsal area ovate, ca. 2–2.5 mm long, gray-green. Lateral sepals ca. ½ connate, ca. 2 mm long, inequilateral, the lobes acute, scariosus, the carinal keel narrow, entire. Petal blades narrowly obovate, ca. 1.5 mm long, apically rounded, lacerate, yellow. Staminodia somewhat reduced, bibrachiata, the branches at apex short-plumose with moniliform hairs. Anthers oblong, ca. 0.3–0.4 mm long, the locules parallel, distinct; filaments ca. 0.5 mm long. Capsule dorsiventrally compressed, oblong-cylindric, very thin, 1.2–1.3 mm long; placenta basal. Seed solitary, lenticularly oblong-ellipsoid, 1–1.2 mm long, filling capsule, translucent, pale yellow-brown, finely longitudinally striate.

Additional material examined. BRAZIL AMAZONAS: Transamazonas Highway, 53 km W of Aripuanã River; “campina” region, common in open campina of white sandy soil, 27 June 1979, Cleofé E. Calderón, O. P. Monteiro & J. Guedes 2696 (INPA, US, VDB); Município de Borba, acima de Terra Preta, campina do rio

Surubim, afluente do rio Abacaxis, 4°29'S, 58°33'W. Campina aberta, areia branca. Erva de 10 cm de altura; flores amarelas, 4 July 1983, C. A. Cid 4026 (INPA, NY, VDB).

This species is easily distinguished by its fringe of strong though slenderly tapering rigid bristles on the margins of the fertile bracts, nearly separate anther locules, and reduced staminodial condition. It is unusual in its particularly small and thin-walled capsule, this tightly filled by a single large seed.

Xyris calderonii Kral, Smith & Wanderley, sp. nov. TYPE: Brazil. Amazonas: Transamazonas Highway, 9 km W of Rio dos Pombos, ca. 1.5 km E of Igarapé dos Pombos, and ca. 64 km E of the Aripuanã. Common in white sand campina, flowers yellow, 18 June 1979, Cleofé E. Calderón, O. P. Monteiro & J. Guedes 2549 (holotype, INPA; isotypes, US, VDB). Figure 2.


Planta humilis, annua, praeter inflorescentiam glabra. Radices filiformes. Folia linearia, solum basalia, 3–7 cm longa, flabellate expansa, vulgo vaginis scaporum longiora. Laminae vaginis 2–4-plo longiores, 0.5–1 mm latae, planae, rectae, longitudine paucicostatae, a basi ad apicem compressae, porphyreae vel flavovirentes, apicibus abrupte contractis, incurvato-acutis, marginibus integris, non incrassatis; vaginae carinatae, porphyreae, pluricostatae, praeter costas scarriosa, marginibus scariosis stramineis, in laminas gradatim convergentibus aut ad apicem ligulam scariosam curtam latam fascientibus, infime gradatim expansae, acies integrae. Vaginae scaporum laxae, plerumque apertae, rectae, carinatae, laminis aut similis laminis foliorum aut brevibus. Scapi subteretes, filiformes plus minusve spiraliter torti, 5–10 cm alti, 0.4–0.5 mm crassi, distaliter leviter multicostati, costis laevibus. Spicae subglobosae vel late ovoideae, 3–5 mm longae, pluriflorae, obtusae, involucratae. Bracteae steriles 2–4, subdecussatae, villosociliatae; par infimum foliaceum, rigidum, spica 2–5-plo longius, lanceolatum vel oblongum, 2–3 mm longum, carinatum, areis dorsalibus linearibus, viridibus et laminis similibus laminis foliorum sed triangulatis; par intimum ovatum, convexum, scariosum, acutum vel acuminatum, profunde villosociliatum, areis dorsalibus valde papillosis, vulgo sine laminis. Bracteae fertiles late ovatae vel suborbiculatae, 2.5–3 mm longae, valde rotundato-convexae, villosociliati, areis dorsalibus ovatis, valde granu-


lato-papillosis. Sepala lateralia libera, oblonga vel ovata, 2–2.5 mm longa, valde inaequilatera, ala carinali lata, a basi ad medium integra, a medio distante ciliata, apicem versus lacerata. Laminae petalorum late obovatae, ca. 3 mm longae, luteolae, ad apicem late rotundatae et valde erosae. Staminodia bibrachiata, brachiis parce longipenicillatis. Antherae oblongae, sagittatae, ca. 0.5 mm longae; filamenta ca. 0.8–1 mm longa. Capsula matura late obovata, planoconvexa, ca. 1 mm longa, placenta basalia. Semina late ellipsoidea, ca. 0.3 mm longa, pallide brunneola, plus minusve reticulata.

Low annual, smooth except for the inflorescence. Roots filiform. Leaves linear, strictly basal, 3–7 cm long, spreading flabellately, commonly longer than the scape sheaths. Leaf blades 2–4 times longer than sheaths, 0.5–1 mm wide, flat, straight, longitudinally few-costate, flattened from base to apex, brown to yellow-green, the tips abruptly narrowed, incurved-acute, the margins entire, not thickened; sheaths carinate, brown, many-ribbed, scarious except for the ribs, with the thin edges stramineous, gradually narrowing into the blades or apically producing a short, scarious, broad ligule, gradually dilating toward base, the edges entire. Sheaths of scape lax, mostly open, straight, carinate, with blades similar to those of foliage leaves or shorter. Scapes subterete, filiform, ± spirally twisted, 5–10 cm high, 0.4–0.5 mm thick, distally with many low, smooth costae. Spikes subglobose to broadly ovoid, 3–5 mm long, several-flowered, obtuse, involucrate. Sterile bracts 2–4, subdecussate, villos-ciliate, the lowermost pair foliaceous, rigid, 2–5 times longer than the spike, lanceolate to oblong, 2–3 mm long, carinate, the dorsal areas linear, green, with blades similar to those of foliage leaves but triangulate; inner pair (if present) ovate, convex, scarious, acute, very villous-ciliate, the dorsal areas strongly papillate, without blades. Fertile bracts broadly ovate to suborbicular, 2.5–3 mm long, strongly rounded-convex, villous-ciliate, the dorsal areas ovate, strongly granular-papillose. Lateral sepals free, oblong to ovate, 2–2.5 mm long, very inequilateral, with keel broad, proximally entire, at middle distantly ciliate, toward apex lacerate. Petal blades broadly

FIGURE 1. *Xyris pectinata* (T. R. Bahia 35).—a. Habit sketch.—b. Leaf tip.—c. Sector of mid blade.—d. Blade and sheath junction.—e. Leaf base.—f. Spike.—g. Fertile bract.—h. Lateral sepals.—i. Stylar apex, petal blade, stamen, staminodial apex.—j. Seed.

FIGURE 2. *Xyris calderonii* Kral, Smith & Wanderley (Calderon et al. 2549).—a. Habit sketch.—b. Leaf at mid blade.—c. Leaf blade-sheath junction, side (left) and ventral (right) views.—d. Mature spike.—e. Fertile bract.—f. Petal blade and stamen.—g. Stylar apex, staminode.—h. Lateral sepal, capsule.—i. Seed.





obovate, ca. 3 mm long, yellowish, broadly rounded and strongly erose at apex. Staminodia bibrachiate, the branches sparsely long-penicillate. Anthers oblong, sagittate, ca. 0.5 mm long; filaments ca. 0.8–1 mm long. Mature capsule broadly obovoid, plano-convex, ca. 1 mm long, the placenta basal. Seed broadly ellipsoid, ca. 0.3 mm long, pale brown, ± reticulate.

There is no question that the affinities of this little plant are with *X. uleana* Malme; in the production of narrow leaf blades it is most similar to var. *angustifolia* Lanj., which also sometimes produces long-tipped basal bracts. How-

ever, the lateral sepals are smaller and show a somewhat different keel configuration; the dorsal areas are consistently long excurrent to produce acicular blades several times longer than the subtended spike. The scapes are uniformly terete.

—Robert Kral, Herbarium, Department of Biology, Vanderbilt University, Box 1705, Station B, Nashville, Tennessee 27235, U.S.A.; L. B. Smith, Department of Botany, Smithsonian Institution, Washington, D.C. 20560, U.S.A.; and Sra. Dra. Maria das Graças de Lapa Wanderley, Instituto Botânica, Caixa Postal 4005, 01000 São Paulo, Brazil.